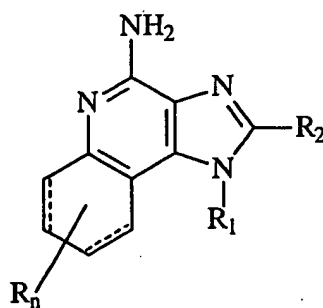


WHAT IS CLAIMED IS:

1. A compound of the formula (I):



(I)

wherein

R₁ is -C₂₋₆ alkyl-NR₃-CY-NR₅-R₄ wherein

Y is =O or =S;

R₄ is hydrogen, alkyl, aryl, or substituted aryl;

R₂ is selected from the group consisting of:

-hydrogen;

-alkyl;

-alkenyl;

-aryl;

-substituted aryl;

-heteroaryl;

-substituted heteroaryl;

-alkyl-O-aryl;

-alkyl-O-alkyl;

-alkyl-O-alkenyl; and

-alkyl or alkenyl substituted by one or more substituents selected from the

group consisting of:

-OH;

-halogen;

-N(R₃)₂;

- CO-N(R₃)₂;
- CO-C₁₋₁₀ alkyl;
- CO-O-C₁₋₁₀ alkyl;
- N₃;
- aryl;
- substituted aryl;
- heteroaryl;
- substituted heteroaryl;
- heterocyclyl;
- substituted heterocyclyl;
- CO-aryl;
- CO-(substituted aryl);
- CO-heteroaryl; and
- CO-(substituted heteroaryl);

each R₃ is independently selected from the group consisting of hydrogen and C₁₋₁₀ alkyl;

R₃ is selected from the group consisting of hydrogen and C₁₋₁₀ alkyl, or R₄ and R₅ can combine to form a 3 to 7 membered heterocyclic or substituted heterocyclic ring;

n is 0 to 4 and each R present is independently selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, halogen and trifluoromethyl, or a pharmaceutically acceptable salt thereof.

2. A compound of claim 1 wherein the dashed bonds are absent.
3. A compound of claim 2 wherein Y is =O.
4. A compound of claim 2 wherein n is 0.
5. A compound of claim 2 wherein R₃ is hydrogen.
6. A compound of claim 2 wherein R₂ is selected from the group consisting of hydrogen, C₁₋₄alkyl, and C₁₋₄alkyl-O- C₁₋₄alkyl.

7. A compound of claim 2 wherein R₄ and R₅ combine to form a 3 to 7 membered substituted or unsubstituted heterocyclic ring.

5 8. A compound selected from the group consisting of:

- N*-[4-(4-amino-2-ethyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;
N-[4-(4-amino-2-methyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;
N-{8-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]octyl}-*N'*-phenylurea;
10 *N*-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]-*N'*-phenylurea;
N-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]-*N'*-phenylthiourea;
N-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]-*N'*-butylurea;
N-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]morpholine-4-carboxamide;
15 *N*-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]-*N'*-propylthiourea;
N-[3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]-*N'*-cyclohexylurea;
N-[8-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)octyl]-*N'*-phenylurea;
N-[4-(4-amino-2-hexyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;
N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}-*N'*-
20 propylthiourea;
N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}-*N'*-cyclohexylthiourea;
N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}-*N'*-cyclohexylurea;
25 *N*-[4-(4-amino-2-pentyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;
N-[4-(4-amino-2-propyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;
N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}-*N'*-phenylurea;
N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}-*N'*-butylurea;
30 *N*-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}morpholine-4-carboxamide;
N-[4-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]-*N'*-phenylurea;

N-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}morpholine-4-carboxamide;

N-{3-[4-amino-2-(3-phenoxypropyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}morpholine-4-carboxamide;

5 *N*-[3-(4-amino-2-methyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propyl]morpholine-4-carboxamide;

N-{3-[4-amino-2-(2-methoxyethyl)-6,7,8,9-tetrahydro-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propyl}morpholine-4-carboxamide;

10 *N*-{3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]-2,2-dimethylpropyl}-*N*⁷-phenylurea;

N-[4-(4-amino-2-methyl-6,7,8,9-tetrahydro-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]morpholine-4-carboxamide;

N-{4-[4-amino-2-(3-phenoxypropyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]butyl}morpholine-4-carboxamide; and

15 *N*-[4-(4-amino-2-pentyl-6,7,8,9-tetrahydro-1*H*-imidazo[4,5-*c*]quinolin-1-yl)butyl]morpholine-4-carboxamide;

or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical composition comprising a therapeutically effective amount of a
20 compound of claim 1 in combination with a pharmaceutically acceptable carrier.

10. A pharmaceutical composition comprising a therapeutically effective amount of a compound of claim 2 in combination with a pharmaceutically acceptable carrier.

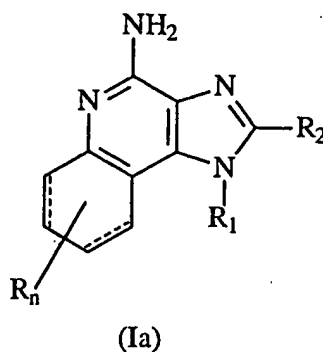
25 11. A pharmaceutical composition comprising a therapeutically effective amount of a compound of claim 8 in combination with a pharmaceutically acceptable carrier.

12. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a compound of claim 1 to the animal.

30 13. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a compound of claim 2 to the animal.

14. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a compound of claim 8 to the animal.

5 15. A pharmaceutical composition comprising a therapeutically effective amount of a compound of the formula Ia:



wherein

10

R_1 is -alkyl- NR_3 -CO-O- R_4 ;

R_4 is alkyl, aryl, or substituted aryl;

R_2 is selected from the group consisting of:

15

-hydrogen;

-alkyl;

-alkenyl;

-aryl;

-substituted aryl;

-heteroaryl;

20

-substituted heteroaryl;

-alkyl-O-aryl;

-alkyl -O-alkyl;

-alkyl-O-alkenyl; and

25

group consisting of:

-OH;

- 5
- halogen;
 - N(R₃)₂;
 - CO-N(R₃)₂;
 - CO-C₁₋₁₀ alkyl;
 - CO-O-C₁₋₁₀ alkyl;
 - N₃;
 - aryl;
 - substituted aryl;
 - heteroaryl;
 - 10 -substituted heteroaryl;
 - heterocyclyl;
 - substituted heterocyclyl;
 - CO-aryl;
 - CO-(substituted aryl);
 - 15 -CO-heteroaryl; and
 - CO-(substituted heteroaryl);

each R₃ is independently selected from the group consisting of hydrogen and C₁₋₁₀ alkyl;

- 20
- n is 0 to 4 and each R present is independently selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, halogen and trifluoromethyl, or a pharmaceutically acceptable salt thereof, in combination with a pharmaceutically acceptable carrier.

- 25
16. A pharmaceutical composition of claim 15 wherein the compound is selected from the group consisting of:

- tert*-butyl 3-(4-amino-2-butyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propylcarbamate;
- tert*-butyl 3-[4-amino-2-(2-methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propylcarbamate;
- tert*-butyl 3-(4-amino-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propylcarbamate;
- 30 *tert*-butyl 3-[4-amino-2-(3-phenoxypropyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propylcarbamate;
- tert*-butyl 3-[4-amino-2-(ethoxymethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]propylcarbamate;

tert-butyl 3-(4-amino-2-methyl-1*H*-imidazo[4,5-*c*]quinolin-1-yl)propylcarbamate;
tert-butyl 3-[4-amino-2-(ethoxymethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]ethylcarbamate;
and
tert-butyl 3-[4-amino-2-(methoxyethyl)-1*H*-imidazo[4,5-*c*]quinolin-1-yl]ethylcarbamate.

5

17. A method of inducing cytokine biosynthesis in an animal comprising administering a therapeutically effective amount of a composition of claim 15 to the animal.

18. A method of inducing cytokine biosynthesis in an animal comprising administering
10 a therapeutically effective amount of a composition of claim 16 to the animal.